

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appl. No. 10/776,597
Attorney Docket No.: A8533

REMARKS

Claims 1-50 are all the claims pending in the application. By this amendment, Applicant amends claims 4, 5, 7, 10, 26, 28, 30, 34, and 35 for precision of language and consistency. In addition, Applicant adds claims 46-50. Claims 46-50 are clearly supported throughout the specification *e.g.*, ¶¶ 25, 30, 34, 36, and 47 of the specification.

I. Preliminary Matters

Applicant thanks the Examiner for indicating acceptance of the drawings filed on February 12, 2004. Applicant also thanks the Examiner for returning the initialed PTO/SB/08 forms submitted with the Information Disclosure Statements filed on February 12, 2004 and July 14, 2004. Applicant respectfully requests the Examiner to withdraw the objection to claim 34 in view of the self-explanatory amendments being made herein.

II. Prior Art Rejections under 35 U.S.C. § 102

Claims 1-34 and 37-45 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,686,808 to Lutz (hereinafter “Lutz”). Applicant respectfully traverses these grounds for rejection in view of the following comments.

To be an “anticipation” rejection under 35 U.S.C. § 102, the reference must teach every element and recitation of the Applicant’s claims. Rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art. Thus, the reference must clearly and unequivocally disclose every element and recitation of the claimed invention.

Independent claim 1, among a number of unique features, recites: “a microprocessor operable to determine current state of charge for a plurality of different battery types.” The Examiner alleges that claim 1 is directed to a state of charge indicator and is anticipated by Lutz. Specifically, the Examiner alleges that the charge control circuit U2 discloses the determining current state of charge as set forth in claim 1 (*see* page 2 of the Office Action). Applicant respectfully disagrees. Applicant has carefully studied Lutz’ disclosure of the charge control circuit determining state of charging and discharging, which is not the current state of charge *i.e.*, the capacity of the battery.

Lutz relates to an apparatus for mating to rechargeable batteries for the purpose of identifying and detecting a variety of rechargeable batteries (col. 3, lines 17 to 56). In Lutz, detection by use of the array of contacts is by sensing presence of voltage on particular contacts, and then recognizing the type of battery through a pre-programmed microprocessor in order to apply the proper charging algorithm for the type of the rechargeable battery presented to the charger docking station. The charging status of the rechargeable battery is determined by measuring the battery terminal voltage and its rate of voltage change and temperature change with respect to time during a charging period (col. 3, lines 51 to 61). That is, Lutz discloses a universal charger that incorporates voltage, current, and temperature measurements for controlling the charge input to the batteries and indicating the charge status during charging or conditioning of the batteries.

Lutz, however, does not disclose or suggest determining the actual state of charge of the battery. Lutz only discloses regulating charging current based on voltage Vbat “indicating the

battery's condition of charge or discharge" (col. 6, lines 12 to 18). That is, Lutz discloses determining the charging status of rechargeable batteries. The status of charging is a relative condition of the current charged into the rechargeable battery. In other words, Lutz discloses obtaining a voltage measurement and using resistors for sensing the current flow, thereby determining the state of charging or discharging for control the charging process. Lutz does not disclose or suggest determining the capacity (state of charge) of the batteries. In short, Lutz does not disclose or suggest measuring coulombic state of charge through the use of a portable and reusable device for non-rechargeable batteries.

By way of an example, Applicant respectfully provides the following analogy that relates to displays of cars. Car displays often have a fuel gage indicating amount of gas left and also an indicator showing miles per gallon while driving. For example, in the city, the car display may show 17 miles per gallon, whereas on a highway, the car display may show 23 miles per gallon. Similarly, Lutz discloses indicating the state of charging *i.e.*, miles per gallon, and does not disclose or suggest a state of charge or capacity of the battery *i.e.*, the amount of gas left.

Therefore, a microprocessor "...operable to determine current state of charge for a plurality of different battery types," as set forth in claim 1 is not disclosed by Lutz, which lacks determining the current state of charge as opposed to the state of charging or discharging. For at least this exemplary reason, claim 1 patentably distinguishes from Lutz. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claim 1 and its dependent claims 2-19.

In addition, dependent claim 4 recites: “a sealing feature for affixing said housing to the battery, wherein the sealing feature is an O-ring.” That is, this sealing O-ring feature allows the sealing of the device in a portable batteries in a way that when the batteries are exposed to elements including wet conditions, sand, dust, etc, the sealing between the portable battery and the device still prevents contamination of the device during use. Lutz only discloses a ‘snugly’ to securing the mechanical fit and fails to disclose or suggest an O-ring sealing feature that will prevent contamination of the device during use in various environmental conditions. For at least this additional exemplary reason, claim 4 patentably distinguishes from Lutz.

In addition, dependent claim 5 recites: “wherein the battery is a non-rechargeable battery.” Lutz is directed to a charging device for charging rechargeable batteries and fails to disclose or suggest the battery being a non-rechargeable battery. For at least this additional exemplary reason, claim 5 patentably distinguishes from Lutz.

In addition, dependent claim 7 recites: “wherein said at least one contact further provides power from said battery to said microprocessor.” In Lutz, the power to the microprocessor and control circuit is supplied from the charging base through J-1 DC In (Fig 4). The circuit is used to measure the voltage of the rechargeable battery from the voltage input through the contact block. In other words, Lutz discloses a stationary charging device and does not disclose or suggest an autonomous state of charge indicator that is powered by the battery. For at least this additional exemplary reason, dependent claim 7 patentably distinguishes from Lutz.

In addition, claim 10 recites: “wherein said display is operable to indicate the current state of charge in percentages with respect to a fully charged battery.” Lutz only discloses

indicating the status of charging cycle during charging. Moreover, Lutz only discloses an LED that can indicate fully charged or discharged (Fig. 1) but Lutz does not disclose or suggest indicating the charging in percentages with respect to the fully charged battery. For at least this additional exemplary reason, claim 10 is patentably distinguishable from Lutz.

In addition, claim 17 recites: “wherein said sensing device is in the battery.” The Examiner alleges that contacts of the charger that protrude into the battery allegedly disclose the sensing device being in the battery (*see* page 5 of the Office Action). Applicant respectfully disagrees. In Lutz, the contacts 21-28 and element 151 are simply connectors and are not the sensing device that measure the voltage drop of the battery as recited in claim 1. For at least this additional exemplary reason, claim 17 patentably distinguishes from Lutz.

Independent claims 20 and 37 recite features similar to, although not necessarily coextensive with, the features argued above with respect to claim 1. Therefore, arguments presented with respect to claim 1 are respectfully submitted to apply with equal force here. For at least substantially analogous exemplary reasons, therefore, independent claims 20 and 37 are patentably distinguishable from Lutz. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claims 20 and 37 and their dependent claims 21-34 and 38-45, respectively.

In addition, dependent claim 26 recites “wherein said battery has at least two strings of cells and at least two legs and wherein said state of charge indicator is attached to one leg of said at least two legs and each other leg of said at least two legs has a series resistor in the battery for balanced discharge.” The Examiner alleges that Lutz positive and negative terminals are

equivalent to the two legs and that the resistors 55 and 56 are provided for balanced discharge (see page 6 of the Office Action). Applicant respectfully disagrees. First, Lutz fails to disclose or suggest a battery that would have more than one string of cells (Fig. 3). Moreover, the resistors 55 and 56 are in the charging device i.e., the docking tray and are only connected to the battery negative input and battery positive input, respectively. However, Lutz fails to disclose or suggest the terminals having the resistors in the battery. That is, Lutz fails to disclose or suggest the battery legs having the resistors. For at least these additional exemplary reasons, claim 26 is patentably distinguishable from Lutz.

III. Prior Art Rejections under 35 U.S.C. § 103

Claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lutz. Applicant respectfully traverses these grounds for rejection in view of the following comments.

Claims 35 and 36 depend on claim 20. Applicant has already demonstrated that Lutz fails to disclose or suggest the unique features of claim 20. Accordingly, claims 35 and 36 are patentable at least by virtue of their dependency on claim 20.

Moreover, claim 35 recites: “a memory chip storing the current state of charge information provided from said microprocessor.” Applicant respectfully submits that the prior art of record fails to disclose or suggest a battery having a memory chip that would store current state of charge information provided from a charger. For at least this additional exemplary reason, claim 35 is patentable over Lutz.

In addition, claim 36 recites: “a label covering said receptacles.” The Examiner alleges that the label is “irrelevant to the invention” (see page 9 of the Office Action). Applicant

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respectfully disagrees. Applicant respectfully submits that a battery may be a non-rechargeable battery and may be provided with or without the reusable state of charge indicator. The label over the receptacle would be removed only if the reusable state of charge indicator is used.

Accordingly, if the battery were to be used again, there is an indication that it has been used with the state of charge indicator. The user would then be alerted to insert a state of charge indicator to determine the state of charge of the battery. For example, in combat, only new batteries are used, whereas in training operations, a battery may be reused. Accordingly, Applicant respectfully submits that the above-quoted unique feature of claim 36 is not "irrelevant to the invention". For at least this additional exemplary reason, claim 36 is patentable over Lutz.

IV. New Claims

In order to provide more varied protection, Applicant adds claims 46-50. Claims 46-50 are patentable at least by virtue of their dependency on claim 1.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

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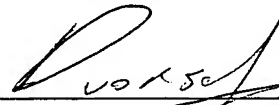
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